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Impact of community infrastructure on the socio-economic livelihood of rural farmers in Rivers State.

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Abstract

The study investigated the impact of community infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The focused on determining the impact of connective infrastructure, water and sanitation infrastructure and socio-economic infrastructure. The study was carried out in Rivers State. The study adopted a descriptive survey research design. The population of the study was all rural farmers in Rivers State. Purposive sampling techniques was used to select 60 rural farmers in the three senatorial zones in Rivers State Forty-two of the selected farmers were males while 18 were females. The instrument used for the study was self-structured questionnaire. The instrument was established for reliability using test-retest method which resulted to reliability coefficient of 0.91. The method used for data presentation and analysis was tables, frequencies, mean and standard deviation. t-test was used to test hypotheses at 0.05 level of significance. Findings of the study showed that community infrastructure is a vital mechanism for conveyance of good and sustainable livelihood for farmers in the rural areas. Community infrastructure has high positive impact on both social and economic wellbeing of rural farmers. Community infrastructures such as roads, footbridges, potable water, sanitation infrastructure, market establishment among others influence on the social economic wellbeing of rural farmers in Rivers State. It was recommended among others that Government should help in providing electricity connection to rural areas, as this will enable industrial encroachment to remote areas.

Keywords: community infrastructure, socio-economic, livelihood, rural, farmers,

Introduction

Infrastructures are essential facilities and structures needed for conducive livelihood of people such facilities include electricity, transportation, communication system, building, roads, water among others. Infrastructure could be regarded as a set of fundamental facilities and systems that provide supports for functionality of households and firms. These are facilities that makes livelihood activities easier for people and operationality of corporate organization. Infrastructure is considered a major facilitator of economic growth, however, when considering the impact of infrastructure countries where weak governance, distorted public investment choices, and

corruption are a reality, the benefits of infrastructural expansion that result in higher growth are not necessarily equally shared and could result in interregional or interpersonal income inequality (Sumedhar, 2018). Community infrastructure are basic amenities within the community that are developed to add values to lives and ease livelihood and possibly improve the standard of living of the people. According to the Global Facility for Disaster Reduction (N.D) community infrastructures are usually the weakest form of physical infrastructures constructed at the local level and these make both the infrastructure and the community vulnerable to disaster shocks. Community infrastructure primarily refers to small scale basic structures, technical facilities and systems built at the community level that are critical for sustenance of lives and livelihoods of the population living in a community. These are infrastructures built over time through community-led initiatives according to the needs and aspirations of the community population. The types of infrastructure are extremely diverse and vary from community to community depending on geo-physical, socio-cultural and economic factors that influence the lives and livelihoods of the population in a community.

According to Khan (2021), community infrastructure covers a range of services and facilities that meet local and strategic needs and contribute towards a good quality of life, facilitating new and supporting existing relationships, encouraging participation and civic action, overcoming barriers and mitigating inequalities, and together contributing to resilient communities. In a globalizing world, there is an increasing collaboration to ensure that there is a linkage from rural to rural areas, urban- urban areas, and rural-urban areas. The motive behind is that when there is equitable access to various areas of the countries, there are possibilities for economic advancement, globalization, development and decreased rate of low standard of living in some remote areas. Therefore, there is a growing concern to establish structures to achieve this aim. In this wise the World Bank in 2018 urged policymakers in Nigeria to focus on investments that reinforce clusters and economies of scale and optimize the connectivity between rural areas and the major urban markets in order to reduce unemployment and poverty rates in Africa largest economy (Business a.m, 2018). Evidence suggests transport and other connective infrastructure disperses economic activity in developing countries (World bank Group, 2018). The appropriate positioning of connective infrastructures in the rural areas could help to reduce trade costs and make migration easier, lower inter-region price differences/volatility, lower cost of firm entry, lower cost of inputs/consumption, and raise land values. Connective infrastructure in the rural is mainly related to community access and internal circulation including internal roads, walkways, footpaths within the community providing access to the national arterial or local road system

Infrastructure is one of the instruments to improve development of a region, it does not guarantee regional competiveness but it creates necessary conditions for the achievement of regional development goals. Social infrastructure plays an important role in supporting the three core aspects of social integration. It supports relationships within communities and between people from different backgrounds by providing places for people to meet friends and to make new connections. Social infrastructure supports equality by providing access to support and services, particularly to those who are more vulnerable or disadvantaged (Khan, 2021). These are small-scale structures, developed through local initiatives for a community's socio-cultural and economic prosperity. They include small marketplaces and infrastructure within market grounds, including pathways, sheds, drains, community shops, community resource centers, religious centers, graveyards, playgrounds and so on. The trade sector team would assess damage and changes in flows for all market-related structures and activities.

The accessibility to improved water and sanitation has been understood as a crucial mechanism to save infants and children from the adverse health outcomes associated with diarrheal disease. This knowledge stimulated the worldwide donor community to develop a specific category of aid aimed at the water and sanitation sector. The actual impact of this assistance on increasing population access to improved water and sanitation and reducing child mortality has not been examined (Marienne,et al 2010). Baldwin and Dixon (2008) found that effective sanitation infrastructure supply supports economic growth, enhances quality of life and it is important for national security. Similarly, Bristow and Nellthorp (2000) in their study found the effect of infrastructure on various aspects of regional competitiveness, economic growth, income inequality, output, labour productivity and welfare.

Rural areas are often neglected in infrastructural development because it is mostly believed that rural areas contribute poorly to the economic development of the state. On the contrary, rural areas remains the centre of agricultural production of any nation. Due to the neglect of infrastructural development in rural areas there has being low standard of living, high disease outbreak and low agricultural productivity (Kabiru, 2019). It is therefore pertinent to investigate the impact of community infrastructure on socio-economic livelihood of rural farmers in Rivers State.

Purpose of the study

The main aim of the study was to determine the impact of community infrastructure on the socio-economic livelihood of rural farmers in Rivers State. In specific terms, the study sought to

1. Determine the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State
2. Determine the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State
3. Determine the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State.

Research Questions

The following research questions were posed in order to carry out the study

1. What is the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State?
2. What is the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State?
3. What is the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State?

Hypothesis

The following hypotheses were tested at 0.05 level of significance

i. There is no significant difference in the mean responses of male and female rural farmers on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State
ii. There is no significant difference in the mean responses of male and female rural farmers on the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State
iii. There is no significant difference in the mean responses of male and female rural farmers on the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State

Methodology

The study was carried out in Rivers State. The study adopted a descriptive survey research design. This design was adopted because the researcher obtained data by asking respondents relevant questions on the subject matter through questionnaire. The population of the study was all rural farmers in Rivers State. There is no specific recorded number of rural farmers in Rivers State. Therefore, the total number of the population is not known. Purposive sampling techniques was used to select 60 rural farmers in the three senatorial zones in Rivers State (20 farmers with at least more than 5 plots of land for crop cultivation or rearing of farm animals were selected from each of the senatorial districts). Forty-two of the selected farmers were males while 18 were females. The instrument used for the study was self-structured questionnaire which was designed in a four point rating scale of strongly agree, agree, disagree and strongly disagree. The ratings were in 4,3,2, and 1 respectively. In order to ensure the validity of the data obtained, instrument for data collection was subjected to series of validation such as face and content validity. The

instrument was established for reliability using test-retest method. 10 farmers who were not part of the selected sample were administered the questionnaire on two different occasions. Pearson Product Moment correlation was then used to determine the reliability coefficient to 0.91. This value showed that the instrument proposed for data collection in this study is reliable, After collection of data, the method used for data presentation and analysis was tables, frequencies, mean and standard deviation. t-test was used to test hypotheses at 0.05 level of significance.

Results and Discussion of Findings

Research Questions 1: What is the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State?

Table 1: Impact of Connective Infrastructure on the Socio-economic Livelihood of Rural Farmers in Rivers State.

		Male farmers= 42			Female farmers= 18		
S/N	**Items**	**Mean**	**Std.dev**	**R/mrk**	**Mean**	**Std.dev**	**R/mrk**
1	Road network between rural areas enhances economic activities of farmers	3.42	0.59	Agreed	3.06	0.82	Agreed
2	Good transportation system within the rural area reduces trade cost and migration easier	3.55	0.53	Agreed	3.42	0.69	Agreed
3	Internal roads, walkways, footpath makes farming activities easier for peasant farmers	3.02	0.83	Agreed	3.05	0.74	Agreed
4	Availability of radio, and television waves keep farmers informed on their society	3.91	0.12	Agreed	3.85	0.22	Agreed
5	Transport system for farm produce encourages others to venture into farming business	2.99	1.01	Agreed	2.78	1.03	Agreed
6	Roads, footbridges lower the cost of agricultural inputs	3.09	0.76	Agreed	3.22	0.69	Agreed
7	Availability of telecommunication network increases farmers access to people and information	3.61	0.49	Agreed	3.58	0.64	Agreed
8	Road network attracts agricultural investments to the rural areas	3.40	0.58	Agreed	3.66	0.42	Agreed
9	Good roads in rural areas aids easy transportation of farm produce	3.75	0.37	Agreed	3.69	0.43	Agreed
	Grand Mean & Std.Dev	**3.42**	**0.59**		**3.37**	**0.63**	

Field Survey,2021

Table 1 showed the mean responses of rural farmers on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The findings revealed that road network between rural areas enhances economic activities of farmers (3.42 & 3.06), good transportation system within the rural area reduces trade cost and migration easier (3.55 & 3.42), internal roads, walkways, footpath makes farming activities easier for peasant farmers (3.02 & 3.05), availability of radio, and television waves keep farmers informed on their society (3.91 &

3.85), transport system for farm produce encourages others to venture into farming business (2.99 & 2.78), roads, footbridges lower the cost of agricultural inputs (3.09 & 3.22), availability of telecommunication network increases farmers access to people and information (3.61 & 3.58), road network attracts agricultural investments to the rural areas (3.40 & 3.66), and good roads in rural areas aids easy transportation of farm produce (3.75 & 3.69).

Research Questions 2: What is the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State?

Table 2: Impact of Water and sanitation infrastructure on the Socio-economic Livelihood of Rural Farmers in Rivers State

		Male farmers= 42			Female farmers= 18		
S/N	**Items**	**Mean**	**Std.dev**	**R/mrk**	**Mean**	**Std.dev**	**R/mrk**
1	Availability of drainage lines reduces the flood incidents in farms	3.89	0.32	Agreed	3.91	0.21	Agreed
2	Community water supply system is helpful for irrigation purposes	3.70	0.42	Agreed	3.40	0.82	Agreed
3	Waste disposal system in the rural areas improves sanitary condition of farmers	3.21	0.81	Agreed	3.51	0.89	Agreed
4	Availability of potable water decreases level of disease outbreak	3.29	0.76	Agreed	3.12	0.86	Agreed
5	Provision of refuse disposal means reduces pollution of water sources	3.56	0.60	Agreed	3.30	0.72	Agreed
6	Rivers, ponds and lake pollution reduces when sewage disposal means was provided	3.42	0.64	Agreed	3.49	0.74	Agreed
7	Community water supply system often helpful domestic purposes	3.86	0.34	Agreed	3.49	0.64	Agreed
8	Provision of drainage system aids proper disposal of sewage	3.50	0.65	Agreed	3.52	0.59	Agreed
	Grand Mean & Std.Dev	**3.55**	**0.57**		**3.47**	**0.68**	

Field survey, 2021

Table 2 above represents the opinion of male and female rural farmers on the impact of water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The data obtained from the respondents showed that availability of drainage lines reduces the flood incidents in farms (3.89 & 3.91), community water supply system is helpful for irrigation purposes (3.70 & 3.40), waste disposal system in the rural areas improves sanitary condition of farmers(3.21 & 3.51), availability of potable water decreases level of disease outbreak (3.29 & 3.12), provision of refuse disposal means reduces pollution of water sources (3.56 & 3.30), rivers, ponds and lake pollution reduces when sewage disposal means was provided (3.42 &

3.49), Community water supply system often helpful domestic purposes (3.86 & 3.49), and provision of drainage system aids proper disposal of sewage (3.50 & 3.52)

Research Question 3: What is the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State?

Table 3: Impact of Connective Infrastructure on the Socio-economic Livelihood of Rural Farmers in Rivers State

		Male farmers= 42			Female farmers= 18		
S/N	**Items**	**Mean**	**Std.dev**	**R/mrk**	**Mean**	**Std.dev**	**R/mrk**
1	Establishment of commercial markets in rural areas boost farmers economic activities	3.42	0.71	Agreed	3.41	0.69	Agreed
2	Provision electric energy connection aids establishment of more factories and farms	3.51	0.63	Agreed	3.49	0.71	Agreed
3	Building Community shops supports commercial activities of rural farmers	3.55	0.61	Agreed	3.52	0.77	Agreed
4	Resource centres in the rural areas encourages farmers in their production	3.02	0.82	Agreed	3.49	0.63	Agreed
5	Building Skill acquisition centres in rural areas increases youth's chances of employment	3.31	0.73	Agreed	3.08	0.81	Agreed
6	Market place allows more people to visit rural areas during market days	3.20	0.69	Agreed	3.41	0.60	Agreed
7	Constant power supply increases farmers confort	3.25	0.59	Agreed	3.25	0.64	Agreed
8	Provision of commercial markets attracts sellers and buyers to the community	3.20	0.61	Agreed	3.21	0.67	Agreed
	Grand Mean & Std.Dev	3.31	0.67		3.36	0.69	

Field Survey, 2021

Table 3 is the presentation of data obtained from rural farmers on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The study showed that establishment of commercial markets in rural areas boost farmers economic activities (3.42 & 3.41), provision electric energy connection aids establishment of more factories and farms (3.51 & 3.49), building Community shops supports commercial activities of rural farmers (3.55 & 3.52), resource centres in the rural areas encourages farmers in their production (3.02 & 3.49), building Skill acquisition centres in rural areas increases youth's chances of employment (3.31 & 3.08), market place allows more people to visit rural areas during market days (3.20 & 3.41), constant power supply increases farmers comfort (3.25 & 3.25), and provision of commercial markets attracts sellers and buyers to the community (3.20 & 3.21)

Hypothesis

H_{01}: There is no significant difference in the mean responses of male and female rural farmers on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State.

Table 4: t-test analysis on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State.

Groups	Mean	Std. Dev	N	d.f	Level of sig	t-cal	t-crit	Remark
Male	3.42	0.59	42	58	0.05			
Female	3.37	0.63	18					

Table 4: t-test analysis on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State. Based on the analysis, it was found that no significant difference occurred in the mean responses of male and female rural farmers on the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State. This was because the t-calculated value is lower than the t-critical. Hence the hypothesis was upheld.

H_{02}: There is no significant difference in the mean responses of male and female rural farmers on the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State

Table 4: t-test analysis on the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State.

Groups	Mean	Std. Dev	N	d.f	Level of sig	t-cal	t-crit	Remark
Male	3.55	0.57	42	58	0.05			
Female	3.47	0.68	18					

Field Survey, 2021

Table 5 reveals the t-test analysis on the impact of Water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State. Based on the analysis, it was found that no significant difference occurred in the mean responses of male and female rural farmers on the impact of water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State. This was because the t-calculated value is lower than the t-critical. Hence the hypothesis failed to reject.

H_{03}: There is no significant difference in the mean responses of male and female rural farmers on the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State

Table 4: t-test analysis on the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State.

Groups	Mean	Std. Dev	N	d.f	Level of sig	t-cal	t-crit	Remark
Male	3.31	0.67	42	58	0.05			
Female	3.36	0.69	18					

Table 6 showed the t-test analysis of male and female rural farmers on the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State. The analysis showed that t-cal value () is less than the critical value of t. This showed that There is no significant difference in the mean responses of male and female rural farmers on the impact of socio-economic infrastructures on the socio-economic livelihood of rural farmers in Rivers State. Therefore, the hypothesis was accepted.

Discussion of Findings

The findings of the study revealed the impact of connective infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The study then found out that road network between rural areas enhances economic activities of farmers, good transportation system within the rural area reduces trade cost and migration easier, internal roads, walkways, footpath makes farming activities easier for peasant farmers, availability of radio, and television waves keep farmers informed on their society, transport system for farm produce encourages others to venture into farming business, roads, footbridges lower the cost of agricultural inputs, availability of telecommunication network increases farmers access to people and information, road network attracts agricultural investments to the rural areas, and good roads in rural areas aids easy transportation of farm produce. The study concurred with World Bank Group (2018) which state that the appropriate positioning of connective infrastructures in the rural areas could help to reduce trade costs and make migration easier, lower inter-region price differences/volatility, lower cost of firm entry, lower cost of inputs/consumption, and raise land values.

Table 2 above represents the opinion of male and female rural farmers on the impact of water and sanitation infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The study found that availability of drainage lines reduces the flood incidents in farms, community water supply system is helpful for irrigation purposes, waste disposal system in the rural areas improves sanitary condition of farmers, availability of potable water decreases level of disease outbreak, provision of refuse disposal means reduces pollution of water sources,

rivers, ponds and lake pollution reduces when sewage disposal means was provided, community water supply system is often helpful domestic purposes, and provision of drainage system aids proper disposal of sewage. The findings collaborate with Baldwin and Dixon (2008) who found that effective sanitation infrastructure supply supports economic growth, enhances quality of life and it is important for national security. Similarly, Bristow and Nellthorp (2000) found the effect of infrastructure on various aspects of regional competitiveness, economic growth, income inequality, output, labour productivity and welfare.

Table 3 is the presentation of data obtained from rural farmers on the impact of socio-economic infrastructure on the socio-economic livelihood of rural farmers in Rivers State. The study found that establishment of commercial markets in rural areas boost farmers economic activities, provision electric energy connection aids establishment of more factories and farms, building Community shops supports commercial activities of rural farmers, resource centres in the rural areas encourages farmers in their production, building skill acquisition centres in rural areas increases youth's chances of employment, market place allows more people to visit rural areas during market days, constant power supply increases farmers comfort, and provision of commercial markets attracts sellers and buyers to the remote areas. This finding is consistent with the statement of Khan, (2021) which reads "social infrastructure are small scale structures developed through local initiatives for a community's socio-cultural and economic prosperity". He clearly stated that socio-economic infrastructure supports equality by providing access to support and services, particularly to those who are more vulnerable or disadvantaged". These are small-scale structures, developed through local initiatives for a community's socio-cultural and economic prosperity.

Conclusion

The study concluded that community infrastructure is a vital mechanism for conveyance of good and sustainable livelihood for farmers in the rural areas. Community infrastructure has high positive impact on both social and economic wellbeing of rural farmers. Community infrastructures such as roads, footbridges, potable water, sanitation infrastructure, market establishment among others influence on the social economic wellbeing of rural farmers in Etche Local government area in Rivers State.

Recommendation

The study recommended that

1. Government should carry out more projects such as road construction leading to linkages between communities, this will help to boost economic activities in the rural areas
2. Community leaders should establish commercial markets within the community, this will increase the marketing rate of agricultural products, thereby boosting farmers farmers' income
3. Government should help in providing electricity connection to rural areas, as this will enable industrial encroachment to remote areas.

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